

Pre-Lab Objectives : The Cell - Transport Mechanisms and Cell Permeability

1. Define the following terms: Use drawings to explain.

| | Define | Draw & Label |
|-------------------------------|--------|--------------|
| <i>Selective permeability</i> | | |
| <i>diffusion</i> | | |
| <i>osmosis</i> | | |
| <i>filtration</i> | | |
| <i>isotonic</i> | | |
| <i>hypotonic</i> | | |
| <i>hypertonic</i> | | |
| <i>Active transport</i> | | |
| <i>Passive transport</i> | | |

2. Distinguish between active and passive cell transport processes. Identify each of the following process as either **A** (active) or **P** (passive)

_____ diffusion

_____ solute pump

_____ filtration

_____ osmosis

_____ phagocytosis

_____ pinocytosis

_____ exocytosis

3. Explain the effect of temperature, medium (liquid versus solid), and molecular weight on the rate of diffusion. (Answer the following multiple choice questions).

_____ Molecules in a warm environment diffuse (a) faster, b) slower, c) same rate) as molecules in a cool environment.

_____ Molecules that are light (have a low molecular weight) generally diffuse (a) faster, b) slower, c) same rate) than molecules that are heavy (high molecular weight).

_____ Diffusion through a non-dense medium (water) occurs (a) faster, b) slower, c) same rate) than diffusion through a denser substance (agar gel).

4. Describe the effect of tonicity on cell volume.
(answer the following multiple choice questions)

_____ Red blood cells suspended in 10% saline solution will (a) crenate or shrivel; b) remain in equilibrium; or c) swell and hemolyze or burst

_____ Red blood cells suspended in distilled water will (a) crenate or shrivel; b) remain in equilibrium; or c) swell and hemolyze or burst

_____ Red blood cells suspended in physiologic saline will a) crenate or shrivel; b) remain in equilibrium; or c) swell and hemolyze or burst.